REMARKS

Claims 1-17 are pending in this application. By this Amendment, the specification is amended for clarity, claims 1-14 are amended for clarity, and claims 15-17 are added. No new matter is added by this Amendment. Support for claims 15-17 is found in the original claims.

Prompt and favorable consideration on the merits is respectfully requested.

Respectfully submitted,

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Attachments:
Marked-Up Copy of the Originally Filed Specification
Clean Substitute Specification
Amended Abstract

Date: July 12, 2006

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IGNITION METHOD FOR A SOLID FUEL APPARATUS AND APPARATUS FOR CARRYING OUT SAID METHOD

BACKGROUND

[0001] The invention relates to solid fuel apparatus, in particular to a horizontal or a vertical heating apparatus or a barbecue-type cooking ~~apparatus~~ apparatus, and most particularly to an ignition process or system for such ~~kind~~ a type of apparatus.

[0002] It is known that ignition (i.e., the initiation of combustion of fuel) of a solid fuel apparatus, in particular a heating apparatus or a barbecue-type cooking ~~apparatus, that is to say the combustion beginning of the fuel,~~ apparatus is responsible ~~of~~ for the ~~major part~~ majority of accidents ~~due to~~ that occur with such apparatus.

SUMMARY

[0003] ~~The invention aims to~~ To overcome these and other ~~problems whilst~~ problems, while procuring other ~~advantages. More precisely, it consist to~~ advantages, an ignition method for a solid fuel ~~apparatus, in~~ apparatus is provided. In ~~particular~~ particular, a heating apparatus or a barbecue-type cooking apparatus is provided. ~~apparatus, wherein said~~ The method ~~comprises a step consisting in~~ includes blowing hot air on at least one part of ~~said~~ solid ~~fuel~~ fuel, which is arranged in a container of ~~said~~ the apparatus, in order to ignite ~~the~~ combustion of ~~said~~ the at least one ~~fuel part.~~ part of solid fuel.

[0004] The combustion ignition by a hot stream of air may enable ignition without ~~enables to avoid any using~~ use of a fire lighting apparatus, such as, for ~~example~~ example, ~~as matches~~ matches, lighters and the like. ~~or by inner or outer flame bringing, and especially enables to avoid any adjunction~~ The combustion by the hot stream of air also may enable ignition without use of various flammable products that include, more or ~~less~~ less, toxic and dangerous liquid fuel type substances. The solid fuel can be, for example paper, small pieces of wood, ~~but also~~ wood ~~coal~~ coal, or any other solid fuel ~~of the market.~~ currently known or later developed.

[0005] ~~According to an advantageous characteristic,~~ In an exemplary embodiment, the method ~~according the invention moreover consists in~~ includes blowing ~~a hot~~ hot air on ~~said~~ the fuel, after initiating combustion ~~starting~~ of ~~said~~ the at least one part of ~~said~~ the solid fuel, in order to increase the time of combustion ~~extension of said~~ of the ~~fuel~~ fuel, or to poke ~~combustion~~ the fuel in ~~said~~ the container.

[0006] ~~So, this characteristic enables the increasing of the combustion starting and extension stage in order~~ By blowing hot air on the fuel, the time of initiating of combustion and of maintaining combustion may be increased to quickly obtain an efficient level of the apparatus and/or to poke the ~~combustion according to the~~ fuel to maintain or achieve a desired temperature and ~~the desired~~ cooking speed.

[0007] ~~According to an advantageous characteristic, the~~ The method according to the ~~invention moreover consists in~~ exemplary embodiments further includes blowing ~~a~~ hot air on ~~said~~ the solid fuel, before initiating combustion ~~starting~~ of ~~said~~ the at least one part of ~~said~~ the solid fuel, in order to ~~clear~~ remove moisture from ~~said~~ the solid fuel.

[0008] ~~The invention also relates to a~~ In an exemplary embodiment, solid fuel apparatus, in particular a heating apparatus or barbecue-type cooking apparatus, ~~for carrying out a method, comprising~~ may include a container for containing a solid ~~fuel, wherein~~ fuel. ~~said~~ The apparatus ~~comprising~~ may also include at least one means for generating a hot air stream on at least one part of ~~said~~ the solid fuel.

[0009] ~~According to an advantageous characteristic, said~~ The container ~~comprises~~ may have a furnace ~~grid,~~ grid and an ash pit disposed under ~~said~~ the furnace ~~grid,~~ grid. ~~said~~ The furnace grid and ~~said~~ the ash pit ~~being~~ may be disposed in ~~the~~ a bottom of ~~said~~ the ~~container,~~ container. ~~said~~ The means for generating ~~a~~ the hot air stream on the at least one part of ~~said~~ the solid fuel ~~comprising :~~ may include a pipe and a hot air stream generator. ~~a~~ The pipe ~~to~~ may conduct ~~said~~ the hot air stream to ~~said~~ the ~~container, one~~ container. A first end of ~~which~~ the pipe may ~~leads~~ lead to ~~said~~ the grid into ~~said~~ the container, or over to ~~said~~ the ~~grid,~~ grid. ~~a~~ The hot air stream generator may be disposed ~~out~~ outside of ~~said~~ the container and may be connected to ~~the other~~ a second end of ~~said~~ the pipe.

[0010] ~~According to an advantageous characteristic, said~~ The pipe ~~to~~ that may conduct ~~said~~ the hot air stream to ~~said~~ the container ~~comprises~~ may have a hot air providing means to ~~said~~ provide hot air to the ash ~~pit,~~ pit. The first ~~one~~ end of ~~said~~ the pipe ~~leads~~ may lead to ~~said~~ the grid into ~~said~~ the container, or over ~~said~~ the ~~grid~~ grid, and the ~~other~~ second end ~~is~~ may be connected to ~~a~~ the hot air stream generator.

[0011] ~~Hot~~ Providing hot air ~~providing means~~ to the ash pit may enable ~~to diffuse~~ diffusion of the hot air below the furnace grid and ~~to~~ may widely distribute ~~it~~ the hot air through the furnace grid ~~into~~ to the fuel situated ~~into~~ in the container and over the furnace grid. Thus, the hot air diffusion points into the fuel can be distributed along a wider area.

[0012] ~~According to an advantageous characteristic, the~~ The apparatus ~~according to the invention comprises~~ may further include shutting means to ~~obturate~~ obstruct ~~said~~ the feeding ~~means with~~ of hot air to ~~said~~ the ash ~~pit,~~ pit. The shutting means may be movable between ~~two~~ a plurality of positions, a first position where ~~said~~ the ~~feeding~~ shutting means is ~~open~~ open, providing hot air to the fuel, ~~and~~ a second position where ~~said~~ the ~~feeding~~ shutting means is ~~closed.~~ closed, preventing or discouraging hot air being fed to the fuel, and a third position where the shutting means is partially open.

[0013] This characteristic enables the user to choose a hot air distribution according to his needs.

[0014] ~~According to an advantageous characteristic, the~~ The apparatus ~~according to the invention comprises~~ may further have a regulation means for ~~said~~ regulating the hot air stream headed through ~~said~~ the pipe.

[0015] This characteristic enables an user to modify the hot air stream exhausted ~~onto~~ to the fuel according to his needs.

[0016] ~~According to an advantageous characteristic, the~~ The apparatus ~~according to the invention comprises~~ may further have a means for diffusion of ~~said~~ the hot air stream in a horizontal plane and radially into ~~said~~ the container.

[0017] This characteristic enables ~~to distribute~~ distribution and ~~to extend~~ an extended period of time of providing the hot air ~~way into~~ to or into the ~~fuel~~ fuel, and thus ~~enable~~ enables ~~to obtain~~ a better efficiency of the hot air ignition system.

[0018] ~~According to an advantageous characteristic, the~~ The pipe ~~comprises one~~ may further include a first end connected to an air stream generator, in which the pipe has several sleeves of different ~~diameters~~ diameters, ~~which comprise respectively~~ having one or several ~~entries,~~ entries. ~~enabling by rapid-junction means the adaptation of one~~ One or several fans equipped with heating ~~resistance.~~ resistance may be adapted, respectively, to the one or several entries of the pipe by a rapid-junction means.

[0019] This characteristic enables ~~to adapt by~~ connection by a simple sleeve, or by any other known or later developed quick connecting ~~system,~~ systems, one or several fans equipped with heating ~~resistance,~~ resistance to the pipe. The one or several fans equipped with heating resistance may include, for ~~example~~ example, fans available on the market, such as a "hair-dryer" or a "burner" among others, which are able to be removed once the ignition operation is ended, or ~~staying~~ which may stay connected for further activating embers of the

solid fuel by ~~getting some~~ providing oxygen, in order to raise the furnace ~~temperature.~~temperature, for example.

[0020] ~~According to an advantageous characteristic, the~~ The pipe ~~is~~ may further be connected to the ~~adaptable onto said~~ apparatus by ~~a simple drilling~~ drilling, for example, at least on hole, ~~at~~ in the bottom of ~~said~~ the ash ~~pit~~ pit. ~~wherein said~~ The pipe ~~is~~ may be quickly fitted by way of thread, lug, quarter turn milled ~~ring~~ ring, or by any rapid-junction ~~means.~~means at the at least one hole in the bottom of the ash pit.

[0021] This characteristic enables the pipe to be adapted onto an existing solid fuel apparatus, in order to provide such ~~present~~ an apparatus with an ignition ~~system according to the invention.~~system, as described above.

[0022] ~~According to an advantageous characteristic, the~~ The pipe ~~merges~~ may be inserted into ~~said~~ the ash pit until ~~brushing~~ the pipe brushes against ~~said~~ the furnace grid of ~~said~~ the apparatus.

[0023] ~~According to an advantageous characteristic, the~~ The pipe ~~is~~ may be fitted onto ~~said~~ the ash pit by the rapid-junction means, enabling a quick ~~removing~~ removal of ~~said~~ the pipe in order ~~to~~ to, for example, ~~enable emptying of said~~ empty the ash pit.

[0024] ~~According to an advantageous characteristic, the~~ The pipe ~~is~~ may have ~~drilled by~~ oblique holes drilled along ~~its~~ the pipe's upper surround, in order to widely diffuse the ~~most widely, by way of~~ hot air stream. ~~a~~ A hot air stream division caused ~~by~~ by, for example, a truncated washer arranged inside ~~said~~ the ~~pipe,~~ pipe, may assure ~~assuring~~ the division of ~~said~~ the hot stream for one side towards ~~said~~ the ash pit and for the other side towards ~~said~~ the container in which the furnace of ~~said~~ the apparatus is set.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] Other characteristics will appear more clearly by reading the ~~two~~ following ~~examples of~~ exemplary embodiments of a barbecue-type cooking ~~apparatus~~ apparatus, ~~according to the invention,~~ with reference to the appended drawings, examples given as illustration without any ~~limitation:~~limitation.

[0026] ~~Figure 1~~ Figure 1 shows ~~in section view~~ a cross-sectional view in a first embodiment of a barbecue-type cooking apparatus according to the ~~invention,~~invention;

[0027] ~~Figure 2~~ Figure 2 shows ~~in~~ a partial ~~section~~ cross-sectional view of a second embodiment of a barbecue-type cooking apparatus according to the ~~invention,~~ invention; ~~and,~~and

[0028] ~~Figure 3~~ Figure 3 shows an ~~enlarger~~ enlarged ~~detail~~ detailed depiction of the apparatus shown in ~~of~~ figure 1.

DETAILED DESCRIPTION OF EMBODIMENTS

[0029] ~~The apparatus represented on~~ With reference to figures 1 ~~and 2~~ and 2, ~~comprises :~~

~~[0030]~~ a- container 6 surrounded by a frame 7 ~~comprising~~ has a cooking ~~grid 8~~ grid 8. ~~of which the fixation level onto the~~ The cooking grid 8 may be adjustably fixed in the ~~frame 7~~ frame 7, ~~is advantageously adjustable in relation with~~ relative to a bottom of the ~~container bottom,~~container 6. ~~a~~ A furnace grid 9, may be disposed at the bottom of the ~~container,~~container 6. ~~an~~ An ash pit 10 may be disposed under the furnace ~~grid,~~grid 9. ~~a~~ A ~~pipe 1~~ pipe 1, for leading a ~~to head the~~ hot air stream into the ~~container,~~ container 6, ~~of which~~ has ~~one~~ a first end that leads to the furnace ~~grid~~ grid 9 into the ~~container,~~ container 6, or over ~~it,~~the container 6. ~~a~~ A hot air stream generator 3, 4, 5 disposed ~~out~~ outside of the ~~container 6~~ container 6, and connected to ~~the other~~ a second end of the pipe 1, ~~able to provide~~ is capable of providing heated air, preferably to a temperature around 500°C, for ~~example~~ example, by way of ~~electrically resistors,~~electrical resistors. ~~legs~~ Legs 11 ~~to~~ may support the container 6.

[0030] The hot air stream, channeled into the pipe 1 ~~with~~ having a shape and section adapted to the ash pit 10, is advantageously regulated by ~~the~~ rotation of a throttle 2 ~~which, handed positioned, modifies~~ which is disposed to modify the flow of the hot air stream at will. The exhausted air ~~is for example~~ is, for example, furnished by a hand held ~~4~~ fan 4 or electrical ~~5 fan,~~ fan 5. ~~mono or multi~~ The hot stream generator has one or multiple gears, provided with one or several electrical resistors at its outing, and is preferably controlled by a switch, remote control or any other equivalent control ~~apparatus,~~ apparatus. This hot stream generator advantageously ~~enabling to quickly clear~~ enables quick moisture removal from the solid fuel before initiation of ~~combustion starting~~ combustion, which may advantageously be ~~automatic,~~ automatic. ~~and~~ The hot stream generator may then ~~to~~ poke embers ~~combustion~~ of the solid fuel if needed, according to the temperature ~~and~~ and/or the desired cooking ~~speed.~~speed, and/or other parameter.

[0031] The pipe 1 is advantageously provided with a set of sleeves 12 of different diameters, with one or several entries, enabling by a sleeve, or by any other known or later developed quick connecting ~~system, one~~ system connection to one or several fans equipped with heating resistance, for ~~example~~ example, of the type available on the market, such as a "hair-dryer" or a "burner" among ~~others, able to~~ others. The fans may be removed from the

hot stream generator after ~~once~~ the ignition operation ~~began,~~ begins, or ~~let~~ may remain connected for activating embers ~~by getting some~~ or introducing additional oxygen, in order to raise the furnace ~~temperature.~~temperature, for example.

[0032] The pipe 1, which may or may not be provided ~~or not~~ with a flow regulating throttle 2, is adaptable onto many or most of ~~present~~ currently known barbecues by ~~a simple~~ simply drilling ~~at the~~ a bottom of the ash ~~pit~~ pit 10, and quickly fitting the flow regulating throttle 2 ~~wherein it is quickly fitted~~ by way of thread, lug, quarter turn milled ~~ring~~ ring, or ~~by~~ any ~~rapid junction~~ rapid-connecting means. The pipe 1 ~~merges~~ may be inserted, for ~~example~~ example, into the ash pit 10 until ~~brushing~~ it brushes against the furnace grid 9, as shown on figures 1 and 2, in order to avoid ~~the~~ ash dispersal by the exhaust ~~stream and is~~ stream. The pipe 1 may easily be removed to be emptied. The pipe 1 is advantageously drilled by oblique holes 14 along its upper surround, in order to ~~diffuse,~~ diffuse the air coming into the furnace. For example, the air may be diffused by way of a hot air stream ~~division~~ division, such as, for example, an air stream division caused by a truncated washer 13 disposed across the ~~pipe 1,~~ pipe 1. ~~the~~ The ~~most widely possible, the air coming into the furnace.~~truncated washer may be as wide as possible to fit inside the pipe 1.

[0033] According to the ~~example shown on the~~ exemplary embodiment of figure 3, the pipe 1 ~~merges~~ may be inserted directly into the ~~container,~~ container 6, over the furnace ~~grid,~~ grid 9, the ~~other~~ second pipe end being connected to the hot air stream generator 3, 4, 5 thus feeding the ash pit with hot air. The ~~pipe~~ first end of the pipe 1 inserted ~~merging~~ into the ~~container 6 is~~ container 6, may be advantageously ~~realized by~~ fitted with a mobile diffuser 15 (as shown in Fig. 2) to obstruct or encourage ~~moreover enabling to close or to open~~ the feeding of hot air ~~feeding of~~ into the ash pit 10, depending on the position chosen by ~~the~~ a user, for example by a simple rotation of the diffuser 15. The diffuser 15 may ~~by realized as~~ be a cap, ~~turning~~ turn fitted onto the end of the pipe 1, may have drilled ~~by~~ holes appropriated to diffuse hot air, hooding the end of the ~~pipe 1, the~~ pipe 1. The drilled holes of the diffuser ~~holes 15 being~~ 15 may be disposed in order to advantageously enabling the diffusion of the hot air stream in a horizontal plane and radially into the ~~container 6~~ container 6 ~~and moreover~~ more advantageously into the ~~pit ash 10~~ ash pit 10. ~~when said holes of the diffuser 15 are in regard with the hole 14 drilled into the pipe 1, as represented on figure 3.~~

[0034] The ~~removable~~ diffuser 15 ~~merging into~~ may be removable and may have an upper part 16. When inserted into the ~~furnace~~ furnace, ~~is obturated on its~~ the upper ~~part 16~~ part 16, being flat or convex, ~~in order to~~ may diffuse ~~the whole~~ all or a part of the hot air

stream in a horizontal plane into the ~~container~~ container 6 and, depending ~~the~~ on user needs, into the upper part of the ~~pit ash.~~ ash pit 10.

[0035] The pipe 1 is advantageously fitted onto the ash pit 10 by any rapid-junction means ~~known,~~ known or later developed, such as, for ~~example~~ example, a ~~sleeve or a quick attach,~~ sleeve, enabling a quick ~~removing~~ removal, of the ~~pipe~~ pipe 1, in order to enable ~~the~~ emptying of the ash ~~pit.~~ pit 10.

[0036] The invention enables ~~to ignite~~ ignition of a barbecue without matches or ~~light,~~ a lighter, in less than one ~~minute~~ minute, with ~~an exhausted air~~ a hot air stream at a temperature of around ~~500°C, and the~~ 500°C and to increase the spreading of combustion. ~~cooking~~ Cooking can begin three minutes after ignition. ~~There is no problem with the ignition of a moist~~ Moist ~~fuel,~~ fuel may be utilized because the moisture ~~being~~ may be ~~cleared~~ removed in ~~few~~ seconds by the ~~hot air exhausted.~~ exhausted hot air. The cooking time can be accelerated ~~increased~~ by feeding the ~~container~~ container 6 with hot air ~~while this one,~~ as discussed above or by ~~a classic way by~~ stopping the feeding of hot ~~air feeding.~~ air. ~~When~~ If the apparatus does not ~~comprise a pit ash,~~ include an ash pit, the hot air ~~exhaust can be situated~~ may be introduced directly into the container. ~~The~~ Alternatively, the hot air stream generator can ~~alternatively with the previous description~~ be provided ~~by~~ with a gas burner and be exhausted by a hand held fan.

[0037] The exemplary apparatus may ~~hot air ignition system is~~ also be applicable to inserts, wood or coal burning stoves, chimney or any other heating or cooking means using solid fuel wood, ~~coal~~ coal, ~~or~~ waste oil ~~based.~~ based materials, or the like.

ABSTRACT

~~The invention relates to an~~ An ignition method for a solid fuel type apparatus, in particular a heating apparatus or barbecue-type cooking apparatus, ~~wherein said method comprises a step of~~ includes blowing hot air on at least one part of ~~said~~ the solid fuel which is arranged in a ~~container (6)~~ container of ~~said~~ the apparatus, in order to start the combustion of ~~said~~ the at least one fuel part. ~~The invention also relates to a~~ A solid fuel apparatus, in particular a heating apparatus or barbecue-type cooking apparatus, ~~for carrying out a method according to claim 1, comprising~~ has a ~~container (6)~~ container for containing a solid ~~fuel,~~ fuel. ~~wherein said~~ The apparatus ~~comprising at least~~ has means ~~(3, 4, 5)~~ for generating a hot air stream on at least one part of said solid fuel.

~~FIGURE 1~~